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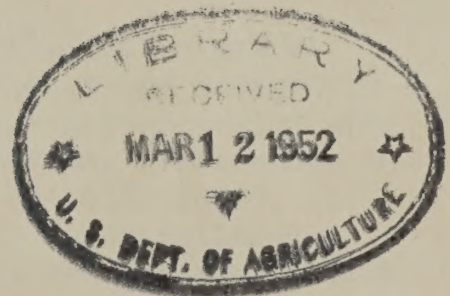
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3 FARM-TO-RETAIL MARGINS FOR FLUID MILK <sup>X</sup>  
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2 U.S. UNITED STATES DEPARTMENT OF AGRICULTURE  
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## FARM-TO-RETAIL MARGINS FOR FLUID MILK

By Louis F. Herrmann and Mordecai Baill 1/

### INTRODUCTION

Milk in some form is consumed by almost everyone at every meal. The price of milk, therefore, concerns every family in the United States. Ordinarily the supply of milk for individual cities and communities is produced and distributed locally. Therefore interest in the price of milk may vary with the locality, and local conditions and factors may have a powerful part in determining the price consumers pay for bottled milk and the price farmers receive for milk used as fresh milk.

National average prices of milk are computed regularly, and estimates are made of the average marketing margin between farmers and consumers. 2/ Yet, because questions as to the price of milk are likely to be localized, differences in prices among cities often receive more attention than does the behavior of the national averages.

This bulletin presents the data relating to prices of milk that are readily available for 80 or more large cities, and examines some of the factors that may be associated with intercity differences in marketing spreads in regard to milk. To illustrate, the average price spread between farm and consumer for quarts of milk delivered to homes in 89 cities, in 1949, was 9.3 cents a quart. The lowest spread was 6.8 cents in Washington, D. C.; the highest was 12.9 cents in Chicago, Ill. (table 17). In 1948, when the level of prices was lower, the range in 83 cities was from 6.0 to 12.1 cents.

A method of inquiry by which marketing efficiencies may be discovered is to study the operations of individual firms engaged in the distribution of milk. 3/ Narrow price spreads are generally presumed to reflect efficient marketing. To some extent, differences in price spreads among markets may be explained by the differences in efficiency among leading milk distributors and by their policies in regard to price. But some of the differences may result from factors over which distributors have little control. These factors may not be discovered through studies of this kind or possibly they would be

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1/ Formerly agricultural economists in the Bureau of Agricultural Economics. Jules V. Powell, formerly agricultural economist, had a part in planning the study and supervising the preparation of the tabulations for 1948.

2/ United States Bureau of Agricultural Economics Fluid Milk Report, and Marketing and Transportation Situation, both published monthly, and Retail Prices of Food in Large Cities, United States Bureau of Labor Statistics (monthly).

3/ Herrmann, Louis F., and Whatley, Thomas J. Farm-to-Market Costs and Margins of Milk Distributors in Memphis, Tennessee. Bur. Agr. Econ. March 1950.



more easily found by less elaborate methods. <sup>4/</sup> This bulletin describes the relationships between price spreads for milk and various characteristics of the different cities for which data were readily available, as one method of finding explanations of variations in efficiency of milk distribution.

Price spreads for fluid milk can be computed fairly satisfactorily for 83 cities for 1948, and for 89 cities for 1949, from regularly published data. <sup>5/</sup> Ten characteristics of these cities are of possible significance in relation to price spreads for fluid milk. These characteristics can be readily ascertained for some or all of the cities. The procedure used in the study consisted mainly of sorting the cities into groups according to one or more main characteristics, then finding the average price spread for fluid milk in each group.

The 10 characteristics examined for association with the price spreads for fluid milk were:

- (1) Geographic location of the market.
- (2) Population of the market.
- (3) Difference in price between milk delivered to homes and milk sold in stores.
- (4) Existence and type of Government regulation.
- (5) Wage rates for drivers of milk trucks.
- (6) Level of prices paid to farmers.
- (7) Difference between prices paid to farmers for milk used for fluid milk and milk used for cream.
- (8) Price spread for milk used in producing cream and cottage cheese jointly.
- (9) Per capita consumption of milk.
- (10) Per capita income.

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<sup>4/</sup> King, G. A., and Bressler, R. G. Efficiency of Milk Marketing in Connecticut 12. Wholesale Milk Distribution. Storrs Agr. Expt. Sta. Bul. No. 273, July 1950.

<sup>5/</sup> For this report the farm-to-retail price spread is the difference between (1) the milk dealer's buying price f.o.b. the city plant and (2) the selling price of standard milk in 1-quart glass bottles. For further information concerning the data and methods used in computing these price spreads see Appendix.



# VARIATION OF PRICE SPREADS FOR FLUID MILK AMONG MARKETS

In 89 cities in 1949, an average difference or price spread of 9.3 cents a quart was noted between the farm and retail prices of milk delivered to homes. Behind this figure lies considerable variation. A range of 6.0 cents between the lowest and highest price spreads was recorded that year. However, a range of only 1.2 cents included half of the cities; that is, between 8.6 and 9.8 cents a quart as shown in table 1. <sup>6/</sup> In 1948, when the price level was lower, the average price spread was 9.0 cents. The range between the highest and lowest spreads was 6.1 cents, with the quartile range running from 8.3 to 9.5 cents.

Table 1. - Farm-to-retail price spreads for fluid milk delivered to homes and sold through stores, selected cities, United States, annual, 1948-49

Price Spread Cents per quart	Milk delivered to homes		Milk sold through stores	
	1948	1949	1948	1949
	Number	Number	Number	Number
5.00 - 5.99	1	0	2	1
6.00 - 6.99	1	2	3	2
7.00 - 7.99	9	2	21	18
8.00 - 8.99	36	37	34	33
9.00 - 9.99	24	31	17	23
10.00 -10.99	11	12	6	9
11.00 -11.99	--	2	--	2
12.00 -12.99	1	3	--	1
Total	83	89	83	89
Average spread, cents per quart	9.0	9.3	8.5	8.8

The price spread for milk sold through stores varied somewhat less among cities than did the spread for milk delivered to homes. The range of price spreads for milk sold through stores was 5.0 cents in 1949, and 4.5 cents in 1948. But these price spreads tended to be

<sup>6/</sup> This is the quartile range. It is found by lining up the cities in order of the size of the spread, and counting down to the point where one-fourth have lower price spreads and three-fourths have higher spreads. The spread at this point is the lower quartile limit. Similarly, the price spread at the point where three-fourths of the cities have lower spreads and one-fourth have higher spreads is the upper quartile limit. The range between the lower and upper quartile limits is the quartile range, and it includes one-half of the cities.



less closely grouped around the averages than did those for milk delivered to homes. The quartile range was 1.6 cents in 1949, the spreads falling between 8.0 and 9.6 cents per quart.

The farm-to-retail price spread for milk sold through stores may be considered in two parts--the spread for the milk distributor and the spread for the store (table 2). In 1949, distributors' spreads ranged from 4.4 to 9.6 cents, while retail stores received from 0.8 to 3.6 cents per quart. In 1948, the range for the distributor was from 3.8 to 8.4 cents, and for the store, 0.8 to 3.0 cents per quart.

Table 2. - Price spreads realized by distributors for fluid milk sold wholesale, and by stores for fluid milk sold retail, selected cities, United States, annual, 1948-49

: Farm-to-wholesale :		Price		: Wholesale-to-retail price	
Price spread : price spread :		spread :		spread through stores	
: 1948 1949 :		: 1948 1949 :		: 1948 1949 :	
Cents per qt.	Number of markets	Cents per qt.	Number of markets	Cents per qt.	Number of markets
3.00 - 3.99	1	--	0.75 - 1.24	4	2
4.00 - 4.99	4	2	1.25 - 1.74	11	8
5.00 - 5.99	17	14	1.75 - 2.24	43	41
6.00 - 6.99	34	32	2.25 - 2.74	18	22
7.00 - 7.99	17	20	2.75 - 3.24	2	2
8.00 - 8.99	5	6	3.25 - 3.74	--	1
9.00 - 9.99	--	2	--	--	--
	78	76		78	76



## FACTORS RELATED TO PRICE SPREADS ON FLUID MILK

### Geographic Location

Geographic location might be expected to influence the size of the farm-to-retail price spreads for fluid milk, if for no other reason than that such items as wage rates and consumption habits show differences. Regional average spreads were above the national average in the Southern and North Central regions, and below the national average in the Northeast and West (table 3). This was the case both for milk delivered to homes and for that sold through stores.

The relative position of these regions with respect to average price spreads was fairly consistent among years and among methods of sale. Yet an examination of the range of price spreads in each region shows considerable overlapping. Some cities in the South had spreads that were among the lowest in the country, even though the averages for the region were higher than any other. When the markets were grouped into more than four regions, the geographic pattern became erratic.

Comparisons of nearby cities give an additional indication that geographic factors influence only slightly the farm-to-retail price spreads for fluid milk. Price spreads in milk markets located short distances apart might be expected to show only slight differences. This is true in many instances, but a number of pairs of nearby markets show wide differences (table 4). For example, Springfield, Ill., had a price spread for milk delivered to homes of 12.1 cents per quart, in 1949. Burlington, Ia., only 110 miles away, had a price spread of 7.6 cents, showing a difference between the two markets of 4.5 cents. In 1949, the price spread for milk delivered to homes was 4.1 cents wider in Chicago, Ill., than in Milwaukee, Wis., although the two markets are only 85 miles apart.

Apparently differences in wage rates and similar items among the markets are not large enough to explain completely this variation in price spreads within regions. Differences in efficiency, such as differences in quantity of milk delivered daily per route, may be important, as may the price policies and the kind and degree of leadership in regard to price exerted by the more efficient firms in each market.

### Size of Market and Store Differential

Differences in price spreads for fluid milk among nearby markets lead naturally to a consideration of differences among markets of different sizes. Price spreads for fluid milk delivered to homes were found to show no definite relationship with size of city (table 5). But the spread for milk sold through stores declined consistently as size of market increased. This situation arises partly because of a pronounced tendency for the retail price of milk in smaller cities to



Table 3. - Farm-to-retail price spreads for fluid milk delivered to homes and sold through stores, selected cities, United States, by regions, annual, 1948-49

Region <u>1/</u>	:	:	Farm-to-retail price spread						
	:	Number	:	Milk delivered	:	Milk sold through			
	:	of	:	to homes	:	stores			
	:	markets	:	Average	:	Quartile	:	Quartile	
:	:	:	Average	:	range 2/	:	Average	:	range 2/
<u>Cents per quart</u>									
1948									
Northeast	18	8.7	8.2 - 9.2	7.9	7.2 - 8.7				
North Central	29	9.2	8.7 - 9.5	8.7	8.2 - 9.2				
South	21	9.2	8.8 - 9.9	9.1	8.8 - 9.9				
West	<u>15</u>	<u>8.4</u>	8.0 - 8.9	<u>8.0</u>	7.8 - 8.4				
United States	83	9.0	8.2 - 9.5	8.5	7.9 - 9.2				
1949									
Northeast	18	8.8	8.4 - 9.2	7.9	7.4 - 8.6				
North Central	35	9.4	8.6 - 10.1	8.9	8.1 - 9.6				
South	21	9.6	9.0 - 10.3	9.5	8.7 - 10.1				
West	<u>15</u>	<u>9.1</u>	8.7 - 9.6	<u>8.5</u>	8.1 - 9.3				
United States	89	9.3	8.6 - 9.8	8.8	8.0 - 9.5				

<sup>1/</sup> Northeast: Me., N.H., Vt., Mass., R.I., Conn., N.Y., N.J., Pa., Del., Md., D.C.; North Central: Ohio, Ind., Ill., Mich., Wis., Minn., Ia., Mo., N.Dak., S.Dak., Nebr., Kans.; South: Va., W.Va., N.C., S.C., Ga., Fla., Ky., Tenn., Ala., Miss., Ark., La., Okla., Tex.; West: Mont., Idaho., Wyo., Colo., N.M., Ariz., Nev., Wash., Oreg., Calif.

<sup>2/</sup> See footnote 5., p. 3.

Table 4. - Farm-to-retail price spreads for fluid milk in selected pairs of nearby markets, 1949

Market	:	:	Annual average		:	Distance between markets
	:	Farm price	:	<u>gross price spreads</u>	:	
	:	fluid milk	:	Home : Retail	:	
	:	:	delivered	:	store	
		<u>Cents per qt.</u>	<u>Cents per qt.</u>	<u>Cents per qt.</u>		<u>Miles</u>
Richmond, Va.		13.1	8.7	8.7		
Washington, D. C.		13.3	<u>6.8</u>	<u>5.0</u>		120
			1.9	3.7		
Chicago, Ill.		8.2	12.9	10.9		
Milwaukee, Wis.		8.2	<u>8.8</u>	<u>8.2</u>		85
			4.1	2.7		
Springfield, Ill.		6.8	12.1	11.6		
Burlington, Ia.		9.7	<u>7.6</u>	<u>7.6</u>		110
			4.5	4.0		
Louisville, Ky.		9.7	11.1	10.6		
Evansville, Ind.		11.1	<u>8.9</u>	<u>8.9</u>		125
			2.2	1.7		



Table 5. - Farm-to-retail price spreads for fluid milk,  
by size of city, annual, 1948-49

		<u>Farm-to-retail price spread</u>			
Population	Number	Milk delivered	Milk sold through		
of	of	to homes	stores		
market city	markets	Average	Quartile	Average	Quartile
:	:	:	range	:	range
<u>Cents per quart</u>					
1948					
0- 99,999	31	8.8	8.3 - 9.5	8.7	8.2 - 9.3
100,000-299,999	23	8.9	8.4 - 9.3	8.5	7.9 - 9.0
300,000 and over	29	9.1	8.7 - 9.9	8.3	7.6 - 8.9
All markets	83	9.0	8.3 - 9.5	8.5	7.9 - 9.2
1949					
0- 99,999	29	9.4	8.5 - 9.7	9.2	8.4 - 9.6
100,000-299,999	29	9.2	8.6 - 9.8	8.7	7.7 - 9.6
300,000 and over	31	9.3	8.8 - 9.9	8.4	7.0 - 9.2
All markets	89	9.3	8.6 - 9.8	8.8	8.0 - 9.6

Table 6. - Differences between retail prices of milk  
delivered to homes and sold in stores,  
selected cities, United States, annual,  
1948-49

Population of market city	Total number of markets		Number of markets in which delivered price exceeded store price		Average difference be- tween retail prices of milk delivered to homes and milk sold in stores	
	1948	1949	1948	1949	1948	1949
	Cents per quart					
0- 99,999	31	29	4	4	.8	.4
100,000-299,999	23	29	10	14	.9	.9
300,000 and over	29	31	18	22	1.4	1.2
All markets	83	89	32	39	1.1	1.0



be the same in stores as when delivered to homes (table 6). Thus, in 1949, out of 29 markets with populations of less than 100,000, only 4 had lower prices for milk in stores than for milk delivered to homes. At the other extreme, in 22 out of 31 markets of 300,000 population or larger prices in stores were lower. Furthermore, among markets having store differentials, the average size of the differential tended to be substantially more in the larger cities. The two largest markets, Chicago and New York, had the largest differentials: 2.0 and 4.4 cents per quart, respectively, in 1948 and 2.0 and 3.3 cents per quart in 1949.

In the medium-sized markets (100,000 to 299,999 population) the farm-to-retail spread for milk delivered to homes was only slightly larger in markets having a store differential than in markets not having one (table 7). In other words, it appears that, in this group of markets, the presence of a store differential had little, if any, effect on the charges for delivering milk to homes.

In both the smaller and the larger markets, too few cities were or were not offering lower prices at stores to warrant a great deal of confidence in the results shown by the averages. In the four smaller markets that offered a store differential in 1948, the average price spread for milk delivered to homes was definitely higher than in markets having no differential. But in 1949, when data were available for only three markets, the difference was negligible. Among the larger markets (population 300,000 and over), price spreads for milk delivered to homes averaged about 1 cent a quart higher, and for store milk about one-third of a cent lower than the average price spread in markets offering no differential. About half of the retail sales of the large markets that offered store differentials are through retail stores. <sup>7/</sup> Thus it appears that the average marketing spread, including all channels of sale, was about one-third of a cent higher for the markets of this size that had store differentials than for those in which there were no differentials.

#### Existence and Type of Government Regulation

About half of the markets covered in this bulletin had some form of Government regulation of prices. During 1948, 21 of the 83 markets operated under Federal milk marketing orders (including some that were under joint Federal and State regulation), and 21 more were entirely State-regulated. Most of the State milk-control agencies set both the farm and the retail prices. Federal orders set only the farm prices, although State agencies fix the retail prices in some markets that have Federal orders.

When Government control agencies set both farm and retail prices they directly affect the marketing spread. In other Government-controlled markets, the controls may have effects on competition which, in

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<sup>7/</sup> O'Grady, William and Foster, Rosamond, Fresh Milk Marketing in Large Cities, Bur. Labor Statis., Washington, D. C., January 1951.



Table 7. - Farm-to-retail price spreads for fluid milk related to size of city and existence of a differential between retail prices for milk delivered to homes and sold in stores, selected cities, United States, annual, 1948-49

Class of market and method of delivery	Number		Farm-to-retail price spread			
	of		1948		1949	
	markets <sup>1/</sup>		Average	Quartile	Average	Quartile
	1948	1949	range	range	range	range
Population under 100,000						
No store differential	23	22	8.6	8.2 - 9.2	9.2	8.5 - 9.6
Store differential:	4	3				
Milk delivered			9.7	<u>2/</u>	9.2	<u>2/</u>
Milk in stores			9.0	<u>2/</u>	8.7	<u>2/</u>
Population 100,000 to 299,999						
No store differential	12	12	9.0	8.7 - 9.3	9.3	8.7 - 9.6
Store differential:	10	14				
Milk delivered			8.8	8.2 - 9.3	9.2	8.4 - 10.1
Milk in stores			7.9	7.2 - 8.8	8.4	7.5 - 9.6
Population 300,000 and over						
No store differential	7	7	<u>3/</u> 8.3	7.6 - 9.9	8.6	8.4 - 9.2
Store differential	18	22				
Milk delivered			9.4	8.8 - 9.9	9.5	8.9 - 9.9
Milk in stores			8.0	7.6 - 8.4	8.2	7.5 - 8.6

<sup>1/</sup> Some markets that are included in previous tables, but that reported a store differential for some months and none for other months during each year are not included in this table.

<sup>2/</sup> Too few markets to justify designating quartile values.

<sup>3/</sup> The average price spread for milk sold through stores in this group of markets was slightly higher (0.02 cent) than the price spread for milk delivered to homes, as one market reported a store price higher than for milk delivered to homes.

turn, might influence the marketing spreads. It was of interest, therefore, to find that the average farm-to-retail spreads were highest in Federally regulated markets and lowest in unregulated markets, although the differences were small (table 8). Spreads for milk delivered to homes in markets having Federal orders averaged 0.4 cent per quart higher than the average of all markets in 1948, and 0.6 cent higher in 1949. Uncontrolled markets averaged 0.3 cent below the average of all markets in both years. For milk sold through stores, the differences were even smaller: In 1948, State-controlled markets were 0.1 cent above the average for all markets, and Federally and uncontrolled markets averaged the same as all markets. In 1949, price spreads for



milk sold through stores in markets having Federal orders averaged 0.2 cent above the average of all markets and uncontrolled markets were 0.1 cent below the average.

The differences between milk-marketing spreads under different types of Government regulation, in 1948 and 1949, are explained largely by the changes in price which occurred and by the influence of regulation on the rates and amounts of these changes. Prices of manufactured dairy products dropped sharply after the middle of 1948. From July 1948 to July 1949, the decline was \$1.50 per hundredweight, or about 3 1/4 cents a quart in prices paid by condenseries for milk. Annual average prices at condenseries for 1948 and 1949 were \$3.90 and \$2.81, respectively--a drop of about 2.4 cents a quart. In most markets having Federal orders, prices to milk producers are fixed by formulas based on prices of manufactured dairy products. Consequently, average prices to producers in the Federal-order markets included in the study dropped 1.7 cents per quart from 1948 to 1949. In State-controlled markets, prices to producers dropped only 0.7 cent per quart; in uncontrolled markets the decline averaged 1.0 cent per quart. Retail prices fell less than farm prices in all three groups of markets, in 1948-49.

With these changes, farm-to-retail price spreads for home-delivered milk widened by 0.5 cent a quart in Federal-order markets from 1948 to 1949. They widened by 0.3 cent in uncontrolled markets, and by 0.2 cent in State-controlled markets. As the same trends were under way during the last half of 1948, the annual average price spreads for that year were wider than they would have been with stable prices, and the differences between markets under different types of regulation were greater also. It appears, therefore, that the way in which price adjustments come about under the different types of regulation, or in unregulated markets, is the chief factor that accounts for the differences in the sizes of price spreads at any given time.

#### Wage Rates for Drivers of Milk Trucks

Costs of labor account for more than half of the total cost of distributing milk. <sup>8/</sup> It is to be expected, therefore, that the size of farm-to-retail price spreads for fluid milk will be more closely related to labor than to any other item of expense. Information as to wage rates of milk-truck drivers was available for eight markets in each year. This information for all markets, together with wage rates for plant employees and some measure of productivity per worker, would have been desirable. Among the eight markets, farm-to-retail price spreads for milk apparently are closely related to wage rates (table 9). In all but two of the cases in which wage rates were \$1.60 an hour or under, the price spreads were under 8.5 cents a quart. In the cases where the wage rates were more than \$1.60 an hour the price spreads were more than 8.5 cents a quart.

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<sup>8/</sup> Howe, Charles B. Marketing Margins and Costs for Dairy Products. U. S. Dept. of Agr. Tech. Bul. 936, November 1946.



Table 8. - Farm-to-retail price spreads for fluid milk, related to type of governmental price regulation, selected cities, United States, 1948-49

Type of governmental price regulation	Number of markets	Farm-to-retail price spread			
		Milk delivered to homes		Milk sold through stores	
		Average	Quartile range	Average	Quartile range
<u>Cents per quart</u>					
<u>1948</u>					
Federal	21	9.4	8.8 - 10.0	8.5	7.6 - 9.5
State	21	9.0	8.3 - 9.4	8.6	8.0 - 9.2
None	<u>41</u>	<u>8.7</u>	8.3 - 9.2	<u>8.5</u>	7.9 - 9.0
All markets	83	9.0	8.3 - 9.5	8.5	7.9 - 9.2
<u>1949</u>					
Federal	25	9.9	8.9 - 10.4	9.0	7.6 - 9.8
State	21	9.2	9.0 - 9.5	8.8	8.4 - 9.2
None	<u>41</u>	<u>9.0</u>	8.4 - 9.6	<u>8.7</u>	8.0 - 9.6
All markets	<u>1/ 89</u>	9.3	8.6 - 9.8	8.8	8.0 - 9.6

1/ Includes 2 markets not classified as to type of regulation because they changed status during 1949.

Table 9. - Farm-to-retail price spreads for fluid milk delivered to homes and hourly wages of retail milk-truck drivers, selected markets, 1948-49

Market	Hourly wage		Farm-to-retail price spread,	
	1948	1949	fluid milk delivered to homes	
	<u>1/</u>	<u>2/</u>	1948	1949
	Dollars		Cents per quart	
Philadelphia, Pa.	1.25	--	8.3	--
Baltimore, Md.	1.35	1.35	7.6	8.1
Butte, Mont.	1.40	--	8.2	--
Detroit, Mich.	--	1.56	--	8.8
Washington, D. C.	--	1.57	--	6.8
Portland, Oreg.	1.41	1.60	7.4	8.4
Minneapolis, Minn.	1.52	--	10.0	--
Chicago, Ill.	1.65	--	12.1	--
St. Louis, Mo.	1.66	--	10.2	--
Seattle, Wash.	--	1.66	--	8.7
Los Angeles, Calif.	--	1.80	--	9.5
San Francisco, Calif.	--	1.85	--	9.5
New York, N. Y.	1.88	2.01	10.1	9.9

1/ Union Wages and Hours: Motor Truck Drivers and Helpers, July 1, 1948. United States Bureau of Labor Statistics, Bul. 955, July 1949.

2/ Union Wages and Hours: Motor Truck Drivers and Helpers, July 1, 1949. United States Bureau of Labor Statistics, Bul. 978, July 1950.



### Level of Prices Paid to Farmers

The price paid to farmers for milk is a large part of the retail selling price--generally one-half to two-thirds. A part of the expense of distributing milk is influenced directly by the price of milk. Examples of such expenses are milk lost through breakage of bottles and through spillage; through sticking to the walls of cans, vats, and pipes; and through returns from delivery routes. Occasionally the theory is heard that milk should be priced so that producers would receive some specified percentage of the retail price. To the extent that price spreads are calculated on this basis, they should also vary directly with prices of milk to producers. Contrary to these expectations; the farm-to-retail price spread apparently tends slightly to be highest where the farm price is lowest (table 10).

When markets are arranged in two groups according to prices paid to farmers the differences in average spreads are small. Some influence of size of market might be suspected, such as that which was evident when markets were classified by type of regulation. Other things being equal, larger markets could be expected to have higher farm prices, and, as previously mentioned, they have been found to have a tendency to smaller farm-to-retail price spreads. When large markets only (300,000 population or more) are grouped according to prices paid to farmers, the inverse relationship between farm price and price spread is evident (table 10). The smaller markets, those under 300,000 population, by themselves, show slightly higher margins where farm prices are highest.

A hint of an explanation for this behavior of farm prices and farm-to-retail price spreads may be found in retail prices. Average retail prices of the groups of markets having high farm prices were about 21 cents, compared with 19 to 20 cents in markets in which farm prices were low. It may be that consumer resistance to higher milk prices forces distributors to adopt more efficient distribution methods in places where farm prices are high. In other words, with low farm prices, relatively less efficient distribution still results in a relatively low retail price. Admittedly, this explanation is weak, as there is no explanation as to how such resistance would be effective in reducing margins. Consumers react to higher retail prices by using less milk, and it is not clear that this would affect differences in price spreads among markets. It is unfortunate that data on per capita consumption are too scanty to permit a test of this possibility. (See p. 16.)

### Milk Used Jointly for Cream and Cottage Cheese

Distributors of milk typically handle products other than fluid milk, and there is some possibility that wider margins on one product would be accompanied by narrower margins on another. Fluid cream, for example, is a rather important item of milk distributors' sales. In 19 markets having Federal orders, the butterfat sold in fluid cream



Table 10. - Farm-to-retail price spreads for fluid milk and prices paid to farmers for milk for fluid use, selected cities, United States, annual, 1948-49

Level of farm prices	Number of markets	Farm-to-retail price spread			
		Milk delivered		Milk sold through	
		to homes		stores	
		Average	Quartile	Average	Quartile
			range		range
Cents per quart					
1948					
All cities					
High farm prices	41	8.8	8.2 - 9.6	8.4	7.5 - 9.2
Low farm prices	<u>42</u>	<u>9.1</u>	8.4 - 9.5	<u>8.6</u>	8.1 - 9.0
All markets	83	9.0	8.3 - 9.5	8.5	7.9 - 9.2
1949					
High farm prices	44	9.0	8.6 - 9.5	8.5	7.8 - 9.1
Low farm prices	<u>45</u>	<u>9.6</u>	8.6 - 10.1	<u>9.1</u>	8.1 - 9.7
All markets	89	9.3	8.6 - 9.8	8.8	8.0 - 9.6
1948					
Cities of 300,000 population and over					
High farm prices	15	8.8	8.3 - 9.9	7.9	7.3 - 8.9
Low farm prices	<u>14</u>	<u>9.5</u>	8.9 - 10.0	<u>8.7</u>	8.3 - 9.3
All large markets	29	9.1	8.7 - 9.9	8.3	7.6 - 8.9
1949					
High farm prices	17	8.9	8.4 - 9.5	8.0	7.5 - 8.6
Low farm prices	<u>14</u>	<u>9.8</u>	8.8 - 10.4	<u>8.9</u>	7.9 - 10.3
All large markets	31	9.3	8.8 - 9.9	8.4	7.8 - 9.2
1948					
Cities under 300,000 population					
High farm prices	26	8.9	8.2 - 9.5	8.7	7.9 - 9.5
Low farm prices	<u>28</u>	<u>8.8</u>	8.3 - 9.3	<u>8.6</u>	8.2 - 9.0
All small markets	54	8.9	8.3 - 9.4	8.6	8.0 - 9.2
1949					
High farm prices	27	9.0	8.6 - 9.6	8.7	8.5 - 9.3
Low farm prices	<u>31</u>	<u>9.4</u>	8.5 - 10.1	<u>9.2</u>	8.1 - 9.7
All small markets	58	9.3	8.5 - 9.8	9.0	8.1 - 9.6

regularly amounts to about one-fifth of the total sales of butterfat in fluid milk and fluid cream combined. <sup>9/</sup> As 1 pint of light cream may be obtained from about 2 1/2 quarts of whole milk, a 1-cent change in the price of a pint of cream would about offset a change of 0.2 cent in the price of a quart of milk.

<sup>9/</sup> Milk Production on Farms and Statistics of Dairy Plant Products, United States Bureau of Agricultural Economics, February 15, 1951, table 60, p. 46. (Processed.)



Comparing the spread on milk with the spread on cream alone might be misleading, as much of the skim milk remaining when cream is produced is used in fluid-milk products sold by distributors. What is wanted is a composite price spread on the cream and skim-milk products obtained from a given quantity of whole milk.

In the 19 Federal-order markets previously referred to, sales of products made chiefly from skim milk are regularly about 5 percent as large as sales of whole milk. <sup>10/</sup> The products included in these figures consist mainly of plain and flavored skim milk and cultured buttermilk. In addition, skim milk from milk used for fluid cream is commonly used in making cottage cheese.

Among these skim-milk products, prices were available only for cottage cheese. A composite price spread on milk used in making cream and cottage cheese for 15 markets in 1948 was computed, and 22 markets in 1949. When these markets were arrayed in order of the spread on fluid milk, the composite price spread on cream and cottage cheese averaged slightly higher in the markets having the highest spread on fluid milk in 1948, contrary to expectation (table 11). The composite spread based on table cream was 0.5 cent higher, and that based on whipping cream was 0.3 cent higher in the markets having above-average spreads on milk. In 1949, however, 11 markets had price spreads of 9.21 cents or less per quart on milk delivered to homes, the average being 8.7 cents per quart. Contrasted with these markets were 11 with price spreads of 9.22 cents or more per quart, averaging 10.1 cents. The composite spreads on milk sold in the form of table cream and creamed cottage cheese were 14.4 and 12.4 cents per quart of milk used, respectively, in the two groups of markets.

Price spreads on cream alone do not show as clear an inverse relationship to the price spread on fluid milk as was shown for the price spread on cream and cottage cheese together. In six of the eight comparisons, the average price spread on cream was highest in the markets having higher price spreads on fluid milk (table 11). But in no instance was the spread on cream as much higher in percentage as was the price spread on fluid milk.

These results suggest that the combined margin realized by milk distributors on all the products they normally sell is more closely related to costs than is the margin on any given item, even an item of such importance in total sales as fluid milk. It is suggested, also, that narrow price spreads on one item tend to be offset by wider spreads on others; and that intermarket comparisons of milk distributors' margins, and possibly comparisons in the same market over a period of time, are weakened if confined to fluid milk alone. <sup>11/</sup>

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<sup>10/</sup> See footnote 9, table 61, p. 47.

<sup>11/</sup> The 1-quart glass bottle of standard milk is used as the unit for calculating price spreads in this study even though it might not represent a major part of a particular distributor's sales of fluid milk. For some distributors sales of homogenized milk, vitamin D milk, or milk high in butterfat, singly or together, may be greater than the sales of standard milk. Furthermore, the sales of milk in paper and multiple unit containers may be greater than the volume sold in 1-quart glass bottles.



Table 11. - Farm-to-retail price spreads for fluid milk, related to composite price spreads for milk marketed as cream and cottage cheese, selected cities, United States, annual, 1948-49

Year and market group	Number of markets	Average farm-to-retail price spreads, products delivered to homes		Composite spread per quart of:		Cream	
		Milk, per quart	Cents	milk used as cream and cream-: ed cottage cheese	Cents	Table, per half pint	: Whipping, per half pint
			Cents	Cream as : Cream as : table cream : whipping cream:	Cents	Cents	Cents
<u>1948</u>							
Low spread on milk	7	8.7	12.0	1/ 10.5	12.8	1/ 17.3	
High spread on milk	8	9.7	2/ 12.5	10.8	2/ 13.8	19.0	
<u>1949</u>							
Low spread on milk	11	8.7	14.4	13.2	13.8	20.7	
High spread on milk	11	10.1	3/ 12.4	11.7	3/ 13.8	20.6	
Products sold through stores							
<u>1948</u>							
Low spread on milk	7	7.8	1/ 11.0	9.7	1/ 11.7	16.5	
High spread on milk	8	8.9	12.3	2/ 11.1	12.8	2/ 18.0	
<u>1949</u>							
Low spread on milk	11	7.7	13.9	12.7	12.7	18.7	
High spread on milk	11	9.4	3/ 12.1	11.2	3/ 13.6	20.7	

1/ 6 markets.  
2/ 7 markets.  
3/ 10 markets.



### Use Classification

Milk sold by farmers in fluid-milk markets is almost universally classified according to use, with different prices for the different classes. Milk actually used as fluid milk is paid for at the highest price. But milk used for fluid cream is sometimes priced the same as for fluid milk, and sometimes at the next lower price. The sizes of the price spreads on cream and on milk apparently are influenced by the way in which milk used for cream is classified, and by the amount of the difference in price between the two classes (table 12). In markets in which the farm price of milk for cream is low, relative to the price of milk for fluid use, dealers tend to allocate a larger share of their total marketing costs to cream items and less to whole-milk items.

Data for the various products are complete for only a few markets. For a large number of markets only the price spreads on milk for fluid use are available for comparison with the differences between prices of milk for the two uses. This information shows that price spreads for fluid milk tended to be lower where the farm price of milk used for cream was lower, although it does not show whether price spreads for cream were wider (table 13).

### Per Capita Consumption of Milk

Data relating to consumption of milk per capita were available for eight markets. Within these markets, those with the highest per capita consumption tended to have higher price spreads on milk delivered to homes and lower price spreads on milk sold through stores, than did the markets with the lowest per capita consumption (table 14). It might be expected that higher per capita consumption would be accompanied by greater efficiency in delivery operations, whether to homes or to stores, which would be reflected in lower price spreads. Apparently, other factors in the cost of delivering milk to homes have overcome any effects of higher consumption in these markets. The strong inverse relationship between size of market and size of the price spread on milk sold through stores is probably more significant than is per capita consumption in explaining the pattern of price spreads found in these eight markets. (See p. 5.)

### Per Capita Income

The level of personal incomes in a given city might be expected to have mixed effects on the farm-to-retail price spreads for fluid milk. On the one hand, higher income would be expected to result in greater consumption, <sup>12/</sup> which in turn would favor economies in distribution. On the other hand, high personal incomes would be likely to mean high wages for milk-plant and route employees--an important item in the cost of distributing milk.

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<sup>12/</sup> What Makes the Market for Dairy Products? Wis. Agr. Exp. Stat. Bul. 477, Sept. 1948, p. 16.



Table 12. - Farm-to-retail price spreads for fluid milk, fluid cream and milk used as cream and cottage cheese related to differences between farm prices of milk used for fluid milk and milk used for fluid cream, selected cities, United States, annual 1948-49

Year and market group 1/	Number of markets:	Average difference between farm price for milk and milk for cream		Average farm-to-retail price spreads, products delivered to homes			
		farm price for fluid milk and milk for cream	on milk used as cream and cream-ed cottage cheese	Composite spread: on milk used as cream and cream-ed cottage cheese	Table	Whip-	
		Cents per quart	Cents per qt	Cents per quart of milk used		Cents per half pint	
<b>1948</b>							
Farm prices identical	3	0.0	8.9	10.2	9.3	10.0	13.6
Farm prices different:							
Differences small	6	.8	9.6	2/11.9	11.2	2/12.3	17.5
Differences large	6	2.6	9.0	13.5	2/10.9	15.7	2/21.9
<b>1949</b>							
Farm prices identical	6	0.0	9.4	10.2	10.0	11.7	19.6
Farm prices different:							
Differences small	8	1.0	9.8	3/13.4	12.6	3/13.0	18.3
Differences large	8	3.9	8.9	15.9	14.2	16.1	23.7
Products sold through stores							
<b>1948</b>							
Farm prices identical	3	0.0	7.9	9.4	9.0	8.5	12.2
Farm prices different:							
Differences small	6	.8	8.7	2/11.4	10.9	2/11.4	16.7
Differences large	6	2.6	8.3	13.1	2/10.6	15.0	2/20.8
<b>1949</b>							
Farm prices identical	6	0.0	8.8	9.8	9.7	11.0	18.7
Farm prices different:							
Differences small	8	1.0	8.8	3/13.0	11.7	3/12.4	17.3
Differences large	8	3.9	8.1	15.5	13.9	15.4	22.9

1/ Markets grouped into (1) those in which milk used for fluid cream is placed in the same class as milk used for fluid milk, the farm prices, therefore, being identical, and (2) those in which milk used for fluid cream is placed in a different class than milk used for fluid milk, the farm price for milk used in cream being lower. The group of markets having different prices for the two uses are further divided into halves according to the size of the differences.

2/ 5 markets only.

3/ 7 markets only.



Table 13. - Farm-to-retail price spreads for fluid milk related to differences between farm prices of milk used for fluid milk and milk used for fluid cream

Year and market group <u>1/</u>	Number of markets	Average	Average farm-to-retail	
		difference	price spreads	
		between farm:	Milk	Milk
		prices for	delivered	sold
		milk, for	to	through
		fluid milk,	homes	stores
		and milk for:		
		cream		
			<u>Cents per quart</u>	
<u>1948</u>				
Farm prices identical	14	0.00	8.9	8.4
Farm prices different:				
Differences small	15	.6	9.3	8.9
Differences large	15	2.5	8.9	8.3
<u>1949</u>				
Farm prices identical	24	0.00	9.4	9.0
Farm prices different:				
Differences small	20	.9	9.5	8.8
Differences large	19	4.2	9.1	8.5

<sup>1/</sup> See footnote 1, table 12, page 21.

Table 14. - Farm-to-retail price spreads for fluid milk related to per capita milk consumption, 8 markets, annual, 1948-49

Market	Per capita consumption of whole milk	Farm-to-retail price spread			
		Milk delivered to homes		Milk sold through stores	
		1948	1949	1948	1949
	Pounds				
				Cents per quart	
Boston, Mass.	.81	8.6	9.2	7.1	7.5
New York, N. Y.	.84	10.1	9.9	5.7	6.6
Buffalo, N. Y.	.78	9.2	9.3	7.5	7.8
Rochester, N. Y.	.74	9.2	9.1	8.2	8.1
Philadelphia, Pa.	.70	8.3	8.4	7.3	7.4
Pittsburgh, Pa.	.66	8.9	9.2	8.9	9.2
Baltimore, Md.	.59	7.6	8.1	7.7	8.1
Richmond, Va.	.56	8.3	8.7	8.3	8.7



Results of comparisons among 63 markets in 1948 and 71 markets in 1949 show no conclusive relationship between level of income and size of price spreads for fluid milk (table 15). <sup>13/</sup> When the markets were classified into two groups according to per capita income the differences between average price spreads for home-delivered milk were 0.1 cent in 1948 and 0.3 cent in 1949, with high-income markets having the higher average spread. On milk sold through stores, the differences in price spreads were 0.5 cent in 1948, when low-income markets had the higher spread, and 0.2 cent in 1949, when high-income markets had the higher spread.

Table 15. - Farm-to-retail price spreads for fluid milk  
related to per capita income, selected cities,  
United States, annual, 1948-49

Market group	: Number		: <u>Farm-to-retail price spread</u>			
	: of		: Milk delivered		: Milk sold	
	: markets		: to homes		: through stores	
	: 1948	: 1949	: 1948	: 1949	: 1948	: 1949
<u>Cents per quart</u>						
Low per capita income	31	35	9.0	9.1	8.7	8.6
High per capita income	32	36	9.1	9.4	8.2	8.8

<sup>13/</sup> Sales Management. Vol. 62, p. 112, May 10, 1949 and Vol. 64, p. 112, May 10, 1950, New York, N. Y., Sales Management, Inc.



## SUMMARY AND CONCLUSIONS

In 1949, an average difference or price spread of 9.3 cents per quart was found between farm and retail prices of milk delivered to homes in 89 cities. In 1948, the spread was 9.0 cents. The range between the highest and lowest spreads was 6.1 cents a quart in both years. This bulletin examines some of the factors that may be responsible for the wide range in marketing spreads for milk among cities.

Regional average farm-to-retail price spreads on fluid milk were highest in the South and North Central regions, and lowest in the Northeast and West. Individual cities differed greatly within regions; in some cities in the South the price spreads were among the lowest in the country.

The retail price of milk in smaller cities tends to be the same in stores as when delivered to homes. Only 4 cities out of 21 with populations of less than 100,000 had lower prices in stores in 1949; while 22 cities out of 31 with a population of more than 300,000 had lower prices in stores. The average difference in the 4 small cities was 0.4 cent a quart; in the 22 large cities the average difference was 1.2 cents.

There were small but inconclusive differences in price spreads between Federally-controlled, State-controlled, and unregulated markets. The first-named had the highest average spreads, and the last-mentioned the lowest. The differences arose mainly from price changes that took place in 1948 and 1949 and from the way in which adjustments of price came about under the different types of regulation.

Farm-to-retail price spreads for milk apparently were closely related to wage rates of milk-truck drivers in the markets for which information was available. All of the markets that had wage rates of less than \$1.50 an hour had price spreads of less than 8.5 cents a quart, and all markets that had wage rates of more than \$1.60 an hour had price spreads of more than 8.5 cents a quart. A more inclusive measure of wage rates and some measure of productivity would contribute to a better appraisal of this factor.

The farm-to-retail price spread on milk tended to be highest where the farm price was lowest. This was contrary to expectations based on the element of shrinkage or on a tendency to price milk to producers at some specified percentage of the resale price.

Cream regularly accounts for about one-fifth of the butterfat sold as fluid milk and fluid cream combined. Dealers' price spreads on milk used for cream, including the spread on cottage cheese made from skim milk obtained in producing cream, tended to be lowest in markets that had the highest spreads on fluid milk. Price spreads on cream alone did not show so clear an inverse relationship to those on fluid milk as did the composite price spread. The tendency for low price spreads on milk to be accompanied by high spreads on cream, or



on a composite of cream and skim-milk products, indicates a limitation on the value of comparisons of price spreads on fluid milk alone as a measure of the efficiency of milk distribution.

Among eight markets for which data as to per capita consumption were available, those with highest consumption tended to have higher price spreads on milk delivered to homes, but lower price spreads on milk sold through stores, than did markets with the lowest consumption. The strong inverse relationship between size of market and size of the price spread on milk sold through stores is probably more influential than is per capita consumption in explaining the pattern of price spreads found in these eight markets.

Results of comparisons based on per capita income show no relation between level of income and size of farm-to-retail price spreads on fluid milk.

Among the factors considered in the study upon which this bulletin is based, size of market was the factor that seemed related most clearly to farm-to-retail price spreads for fluid milk. Size of market was closely related to the prevalence of a store differential, and to the size of the differential. Other factors appeared to affect farm-to-retail price spreads for fluid milk, but to a lesser extent. In any group of markets having in common some such factor as size or location, a wide range of price spreads was found. Even the range of half the markets nearest the center or average of any group generally overlapped the range of that part of a contrasting group. Therefore, results of the study suggest certain tendencies in the behavior of farm-to-retail price spreads for fluid milk, but leave much to be learned by studies of individual markets.



## APPENDIX

Procedure and Sources of Data

The principal source of the data on prices used in this study was the monthly Fluid Milk and Cream Report of the Bureau of Agricultural Economics. <sup>14/</sup> Considerable information was obtained from the monthly Price Report of the National Milk Producers' Federation. These reports furnished monthly data as follows for some 110 markets:

1. Milk dealers' buying prices for fluid milk and milk used for cream at basic butterfat content.
2. Fat content of milk most commonly sold by dealers, and of table cream and whipping cream. (Information for some markets was obtained by correspondence.)
3. Butterfat differentials, or adjustment in price for milk containing more or less than the basic butterfat content.
4. Dealers' selling prices for standard fluid milk, table cream, whipping cream, and creamed cottage cheese, and prices for sales out of stores.
5. Existence and type of Government regulation.

The data were complete for 12 months in only some of the markets. In order to have as many markets as possible available for analysis, any market was used for which there were data for 8 or more months in the year, except that butterfat differentials and butterfat tests for only 1 month in each year were considered enough. The price spreads were analyzed separately for 1948 and 1949. This again, was to make use of the largest possible number of markets, as only a smaller number would have had complete data for 2 years. Some series of data were reported as ranges; the midpoint of the range was used as the required value in each such instance.

Prices were adjusted to the fat test of milk or cream most commonly sold in each market. Dealers' selling prices were already on this basis and their buying prices were adjusted by applying the differentials for butterfat. The margins thus computed are closer to actual operating margins than they would have been if based on a uniform fat content for all markets. "Farm prices" were f.o.b. city, as the charges for assembling milk are mostly unreported.

All dealers' selling prices for milk refer to standard milk in 1-quart glass containers, and to the first quart at each delivery in markets that had systems of discounts for quantity. In most

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<sup>14/</sup> Before September 1949 this periodical report was entitled Fluid Milk Prices in City Markets.



markets, more milk is sold in 1-quart containers than in any other size. However, multiple-quart containers have become important in many markets. In Chicago for example, half-gallon and gallon containers accounted for 36 percent of the total quantity of bottled milk sold in April 1949, but by April 1951 they accounted for about 56 percent of sales. In such markets the farm-to-retail price spread on quarts is a less satisfactory measure of the distributors' margins.

Retail prices for creamed cottage cheese were variously reported for 12-ounce and 1-pound packages. The former were adjusted to the equivalent price for 1 pound, when necessary. Creamed cottage cheese was assumed to contain 5 percent of butterfat for the purpose of computing farm prices of the equivalent quantities of milk.

In computing farm prices of the quantities of butterfat and skim-milk equivalent of cream and creamed cottage cheese, the value of butterfat per pound was taken to be 10 times the butterfat differential applicable to milk used for cream. The cost of skim milk was computed by applying the butterfat differential and reducing the price to that of milk containing 0.0 percent of butterfat. The cost or "farm price" of skim milk obtained by this method varies greatly between markets. With very high butterfat differentials, skim milk may have no value. This is one of the reasons for computing a farm-to-retail price spread for combinations of cream and cottage cheese instead of separate margins for the cream and the skim-milk product. (See p. 12.)

Cottage cheese was used as the joint product with cream because it was the only skim-milk product commonly handled by milk dealers for which prices were on record. But even if prices had been available for some other products, such as buttermilk or chocolate drink, the procedure would still have been somewhat arbitrary. Classification of products and supply and utilization of milk vary between markets in such a way that fluid skim-milk products may be classified differently from the cream produced along with them.



Table 16. - Prices of fluid milk in selected cities, annual average 1948

City	Farm price 1/ :	Wholesale price :	Retail prices		Farm-to-retail margins	
			Delivered to homes :	Sold through stores :	Delivered to homes :	Sold through stores :
Cents per quart						
Birmingham, Ala.	14.06	21.50	24.00	24.00	9.94	9.94
Mobile, Ala.	14.66	21.50	24.00	24.00	9.34	9.34
Little Rock, Ark.	11.95	19.50	22.00	22.00	10.05	10.05
Phoenix, Ariz.	11.45	16.25	19.37	18.41	7.92	6.96
Los Angeles, Calif.	10.90	16.71	19.92	18.92	9.02	8.02
San Francisco, Calif.	10.81	17.04	20.25	19.25	9.44	8.44
Colorado Springs, Colo.	11.27	16.94	19.44	19.44	8.17	8.17
Denver, Colo.	9.98	16.50	19.50	18.50	9.52	8.52
Hartford, Conn.	14.34	19.50	22.50	21.50	8.16	7.16
Washington, D. C.	13.76	18.00	20.75	20.50	6.99	6.74
Jacksonville, Fla.	15.63	23.83	25.83	25.83	10.20	10.20
Miami, Fla.	16.08	24.00	26.00	26.00	9.92	9.92
Boise, Idaho	9.82	16.45	18.55	18.55	8.73	8.73
Chicago, Ill.	10.47	18.91	22.55	20.55	12.08	10.08
Springfield, Ill.	9.76	17.92	20.42	19.88	10.66	10.12
Evansville, Ind.	10.71	17.44	19.44	19.44	8.73	8.73
Ft. Wayne, Ind.	10.47	17.25	19.75	19.25	9.28	8.78
Burlington, Ia.	9.95	15.10	17.20	17.20	7.25	7.25
Sioux City, Ia.	10.00	17.25	19.50	19.00	9.50	9.00
Wichita, Kans.	11.01	-	20.30	19.75	9.29	8.74
Lexington, Ky.	11.07	-	21.38	21.25	10.31	10.18
Louisville, Ky.	11.57	19.14	21.64	21.50	10.07	9.93
New Orleans, La.	12.56	19.42	22.42	21.42	9.86	8.86
Baltimore, Md.	13.09	18.71	20.71	20.79	7.62	7.70
Boston, Mass.	14.02	19.48	22.57	21.14	8.55	7.12
Fall River, Mass.	14.08	19.83	22.33	21.33	8.25	7.25
Grand Rapids, Mich.	10.69	16.42	19.42	17.88	8.73	7.19
Kalamazoo, Mich.	11.05	17.50	20.00	20.00	8.95	8.95
Lansing, Mich.	10.11	16.13	18.38	18.38	8.27	8.27

Continued



Table 16. - Prices of fluid milk in selected cities, annual average 1948 (Cont.)

City	Farm price 1/	Wholesale price	Retail prices		Farm-to-retail margins	
			Delivered to homes	Sold through stores	Delivered to homes	Sold through stores
Cents per quart						
Duluth, Minn.	10.32	16.33	19.33	18.25	9.01	7.93
Minneapolis, Minn.	9.89	17.00	19.92	18.10	10.03	8.21
Kansas City, Mo.	11.33	17.96	20.13	18.98	8.80	7.65
St. Louis, Mo.	11.16	19.23	21.33	21.04	10.17	9.88
Omaha, Nebr.	10.34	16.72	19.44	18.61	9.10	8.27
Butte, Mont.	9.72	-	17.88	17.88	8.16	8.16
Manchester-Nas., N.H.	13.55	-	22.28	22.28	8.73	8.73
Portsmouth, N.H.	13.55	-	22.28	22.28	8.73	8.73
Atlantic City, N.J.	12.77	21.04	23.54	22.54	10.77	9.77
Newark, N.J.	12.77	19.50	23.63	21.92	10.86	9.15
Albuquerque, N.M.	13.07	18.63	20.83	20.83	7.76	7.76
Buffalo, N.Y.	13.09	18.84	22.25	20.63	9.16	7.54
Rochester, N.Y.	13.03	19.20	22.20	21.20	9.17	8.17
Durham, N.C.	13.22	20.42	22.42	22.42	9.20	9.20
Winston-Salem, N.C.	13.29	20.83	22.83	22.83	9.54	9.54
Biltmore, N.C.	13.22	20.83	22.83	22.83	9.61	9.61
Fargo, N.D.	10.36	16.80	18.80	18.80	8.44	8.44
Akron, O.	11.80	18.10	20.60	20.60	8.80	8.80
Canton, O.	11.70	18.00	20.50	20.50	8.80	8.80
Cincinnati, O.	11.27	18.50	21.50	21.50	10.23	10.23
Cleveland, O.	11.33	17.67	20.25	19.25	8.92	7.92
Columbus, O.	11.37	17.58	19.58	19.58	8.21	8.21
Dayton, O.	11.44	18.92	20.92	20.92	9.48	9.48
Toledo, O.	11.01	18.33	20.83	20.73	9.82	9.72
Oklahoma City, Okla.	10.73	17.68	20.18	19.68	9.45	8.95
Tulsa, Okla.	10.26	17.61	20.11	19.61	9.85	9.35
Klamath Falls, Oreg.	11.27	17.55	19.55	19.55	8.28	8.28
Portland, Oreg.	12.21	17.63	19.63	19.65	7.42	7.44
Johnstown, Pa.	11.42	17.81	19.75	19.75	8.33	8.33

Continued



Table 16. - Prices of fluid milk in selected cities, annual average 1948 (Cont.)

City	Farm price $\frac{1}{2}$	Wholesale price	Retail prices		Farm-to-retail margins	
			Delivered to homes	Sold through stores	Delivered to homes	Sold through stores
			<u>Cents per quart</u>			
McKeesport, Pa.	11.87	19.25	20.75	20.75	8.88	8.88
Philadelphia, Pa.	12.56	18.49	20.83	19.83	8.27	7.27
Pittsburgh, Pa.	12.02	19.45	20.95	20.95	8.93	8.93
Providence, R.I.	14.25	19.17	22.17	21.17	7.92	6.92
Aberdeen, S.D.	9.83	16.00	19.00	19.00	9.17	9.17
Sioux Falls, S.D.	10.64	17.00	19.33	19.22	8.69	8.58
Knoxville, Tenn.	11.86	18.25	20.25	20.25	8.39	8.39
Memphis, Tenn.	12.84	16.62	18.83	18.83	5.99	5.99
Nashville, Tenn.	11.98	18.00	20.00	19.55	8.02	7.57
Dallas, Texas	12.77	18.58	21.46	20.67	8.69	7.90
El Paso, Texas	13.07	19.50	22.00	22.00	8.93	8.93
Salt Lake City, Utah	10.47	15.65	18.50	17.62	8.03	7.15
Bellows Falls, Vt.	12.96	18.82	20.82	20.82	7.86	7.86
Richmond, Va.	13.07	20.36	21.36	20.36	8.29	8.29
Bremerton, Wash.	11.65	17.38	20.00	19.58	8.35	7.93
Seattle, Wash.	11.14	17.50	20.00	19.00	8.86	7.86
Spokane, Wash.	10.30	16.81	19.22	19.22	8.92	8.92
Charleston, W. Va.	12.77	20.00	22.50	22.50	9.73	9.73
Wheeling, W. Va.	11.83	18.17	20.67	20.67	8.84	8.84
Beloit, Wis.	10.69	17.50	20.11	20.00	9.42	9.31
Kenosha, Wis.	10.21	16.77	18.82	18.82	8.61	8.61
Madison, Wis.	10.45	16.67	18.42	18.42	7.97	7.97
Milwaukee, Wis.	10.62	16.92	19.42	18.73	8.80	8.11
Cheyenne, Wyo.	11.46	16.50	19.00	19.00	7.54	7.54
New York City	13.78	18.60	23.90	19.45	10.12	5.67

$\frac{1}{2}$  Adjusted to fat test of milk most commonly sold by dealers in each city.



Table 17. - Prices of fluid milk in selected cities, annual average 1949

City	Farm price 1/ :	Wholesale price :	Retail prices		Farm-to-retail margins	
			Delivered to homes :	Sold through stores :	Delivered to homes :	Sold through stores :
Cents per quart						
Birmingham, Ala.	13.27	20.71	22.83	22.83	9.56	9.56
Mobile, Ala.	13.80	-	22.78	22.78	8.98	8.98
Phoenix, Ariz.	11.64	17.00	20.00	19.50	8.36	7.86
Little Rock, Ark.	10.92	17.00	19.50	19.50	8.58	8.58
Fresno, Calif.	9.90	16.83	19.83	19.17	9.93	9.27
Los Angeles, Calif.	10.39	16.67	19.92	18.92	9.53	8.53
Sacramento, Calif.	10.09	16.33	19.33	18.33	9.24	8.24
San Diego, Calif.	10.92	-	20.42	19.42	9.50	8.50
San Francisco, Calif.	10.36	-	19.83	18.83	9.47	8.47
Santa Barbara, Calif.	10.75	17.42	20.42	19.75	9.67	9.00
Colorado Springs, Colo.	10.26	17.50	20.00	20.00	9.74	9.74
Denver, Colo.	10.92	17.00	20.00	19.00	9.08	8.08
Hartford, Conn.	14.34	19.67	22.67	21.83	8.33	7.49
Washington, D. C.	13.34	-	20.14	18.36	6.80	5.02
Jacksonville, Fla.	14.90	23.25	25.17	25.17	10.27	10.27
Miami, Fla.	15.91	24.00	26.00	26.00	10.09	10.09
Atlanta, Ga.	13.03	19.25	22.00	22.00	8.97	8.97
Boise, Idaho	8.45	16.08	18.08	18.08	9.63	9.63
Chicago, Ill.	8.19	17.23	21.08	19.08	12.89	10.89
Springfield, Ill.	6.82	16.38	18.92	18.44	12.10	11.62
Rock Island, Ill.	8.43	15.25	18.25	17.98	9.82	9.55
Evansville, Ind.	11.07	18.00	20.00	20.00	8.93	8.93
Fort Wayne, Ind.	8.10	15.67	18.17	17.67	10.07	9.57
Gary, Ind.	7.98	16.00	19.61	19.61	11.63	11.63
Burlington, Ia.	9.69	15.23	17.27	17.27	7.58	7.58
Des Moines, Ia.	10.23	16.25	18.25	18.25	8.02	8.02
Fort Dodge, Ia.	8.13	14.25	16.25	16.25	8.12	8.12
Sioux City, Ia.	8.51	16.75	19.25	18.75	10.74	10.24
Wichita, Kans.	9.55	-	20.09	19.34	10.54	9.79
Lexington, Ky.	9.75	-	20.54	20.54	10.79	10.79

Continued

Continued



Table 17. - Prices of fluid milk in selected cities, annual average 1949 (Cont.)

City	Farm prices $\frac{1}{2}$	Wholesale price	Retail prices		Farm-to-retail margins	
			Delivered : to homes	Sold through : stores	Delivered : to homes	Sold through : stores
Cents per quart						
Louisville, Ky.	9.74	18.33	20.83	20.33	11.09	10.59
Paducah, Ky.	8.58	-	21.33	21.33	12.75	12.75
New Orleans, La.	12.10	19.50	22.50	21.50	10.40	9.40
Portland, Me.	12.79	19.08	21.33	21.33	8.54	8.54
Baltimore, Md.	12.43	18.50	20.50	20.50	8.07	8.07
Boston, Mass.	13.00	18.92	22.21	20.46	9.21	7.46
Fall River, Mass.	13.24	19.04	21.54	20.54	8.30	7.30
Lowell-Lawrence, Mass.	12.84	-	21.54	20.42	8.70	7.58
Springfield, Mass.	13.04	19.04	21.54	20.29	8.50	7.25
Battle Creek, Mich.	10.06	-	18.42	18.42	8.36	8.36
Detroit, Mich.	9.98	-	18.79	18.04	8.81	8.06
Grand Rapids, Mich.	9.65	15.25	18.25	17.65	8.60	8.00
Kalamazoo, Mich.	9.85	15.82	18.36	18.36	8.51	8.51
Lansing, Mich.	9.09	15.00	17.50	17.50	8.41	8.41
Duluth, Minn.	8.77	16.17	19.17	18.17	10.40	9.40
Minneapolis, Minn.	8.15	15.08	18.08	15.65	9.93	7.50
St. Paul, Minn.	8.15	14.83	17.08	15.58	8.93	7.43
Kansas City, Mo.	9.16	16.17	18.58	17.54	9.42	8.38
St. Louis, Mo.	9.20	17.08	20.15	19.58	10.95	10.38
Omaha-C.B., Nebr.	8.76	15.70	18.70	17.75	9.94	8.99
Albany, N.Y.	11.77	19.04	21.04	21.04	9.27	9.27
Buffalo, N.Y.	12.41	18.25	21.75	20.25	9.34	7.84
New York City, N.Y.	13.05	18.85	22.96	19.65	9.91	6.60
Rochester, N.Y.	12.63	18.75	21.75	20.75	9.12	8.12
Albuquerque, N.M.	13.17	19.50	22.00	22.00	8.83	8.83
Durham, N.C.	12.77	20.33	22.33	22.33	9.56	9.56
Biltmore, N.C.	12.93	21.25	23.25	23.25	10.32	10.32
Grand Forks, N.C.	8.02	15.00	17.00	17.00	8.98	8.98
Fargo, N.D.	7.94	15.08	17.08	17.08	9.14	9.14
Akron, O.	9.53	14.45	17.36	16.73	7.83	7.20

Continued

Table 17. - Prices of fluid milk in selected cities, annual average 1949 (Cont.)

City	Farm price 1/	Wholesale price	Retail price		Farm-to-retail margins	
			Delivered : to homes	Sold through : stores	Delivered : to homes	Sold through : stores
Cents per quart						
Canton, O.	9.76	15.42	18.33	17.50	8.57	7.74
Cincinnati, O.	9.65	16.46	19.42	19.21	9.77	9.56
Cleveland, O.	8.90	14.83	17.83	16.83	8.93	7.93
Columbus, O.	9.18	15.92	17.92	17.92	8.74	8.74
Dayton, O.	9.45	16.75	18.75	18.75	9.30	9.30
Toledo, O.	8.96	16.83	19.33	19.27	10.37	10.31
Tulsa, Okla.	9.94	17.54	20.04	19.64	10.10	9.70
Portland, Oreg.	11.59	18.25	20.00	20.00	8.41	8.41
Johnstown, Pa.	11.47	-	20.54	20.54	9.07	9.07
McKeesport, Pa.	11.75	19.50	21.00	21.00	9.25	9.25
Philadelphia, Pa.	12.11	18.16	20.50	19.50	8.39	7.39
Pittsburgh, Pa.	11.78	19.50	21.00	21.00	9.22	9.22
Providence, R.I.	13.79	19.42	22.42	21.42	8.63	7.63
Sioux Falls, S.D.	9.89	16.13	18.42	18.00	8.53	8.11
Knoxville, Tenn.	11.21	17.92	19.92	19.92	8.71	8.71
Memphis, Tenn.	11.41	15.83	18.33	18.33	6.92	6.92
Nashville, Tenn.	10.27	16.67	18.67	18.25	8.40	7.98
Dallas, Tex.	12.16	18.33	21.25	20.77	9.09	8.61
El Paso, Tex.	13.87	20.92	23.42	23.42	9.55	9.55
Salt Lake City, Utah	10.75	16.00	19.00	18.00	8.25	7.25
Bellows Falls, Vt.	10.77	17.42	19.42	19.42	8.65	8.65
Richmond, Va.	13.14	20.83	21.83	21.83	8.69	8.69
Bremerton, Wash.	10.03	16.58	18.58	18.08	8.55	8.05
Seattle, Wash.	9.85	16.08	18.58	17.58	8.73	7.73
Charleston, W. Va.	11.94	19.01	21.58	21.58	9.64	9.64
Wheeling, W. Va.	11.20	17.83	20.33	20.33	9.13	9.13
Kenasha, Wis.	8.23	15.63	18.17	18.17	9.94	9.94
Madison, Wis.	8.49	14.52	16.92	16.92	8.43	8.43
Milwaukee, Wis.	8.17	14.25	17.00	16.33	8.83	8.16

$\frac{1}{2}$  Adjusted to the fat test of milk most commonly sold by dealers in each city.

















